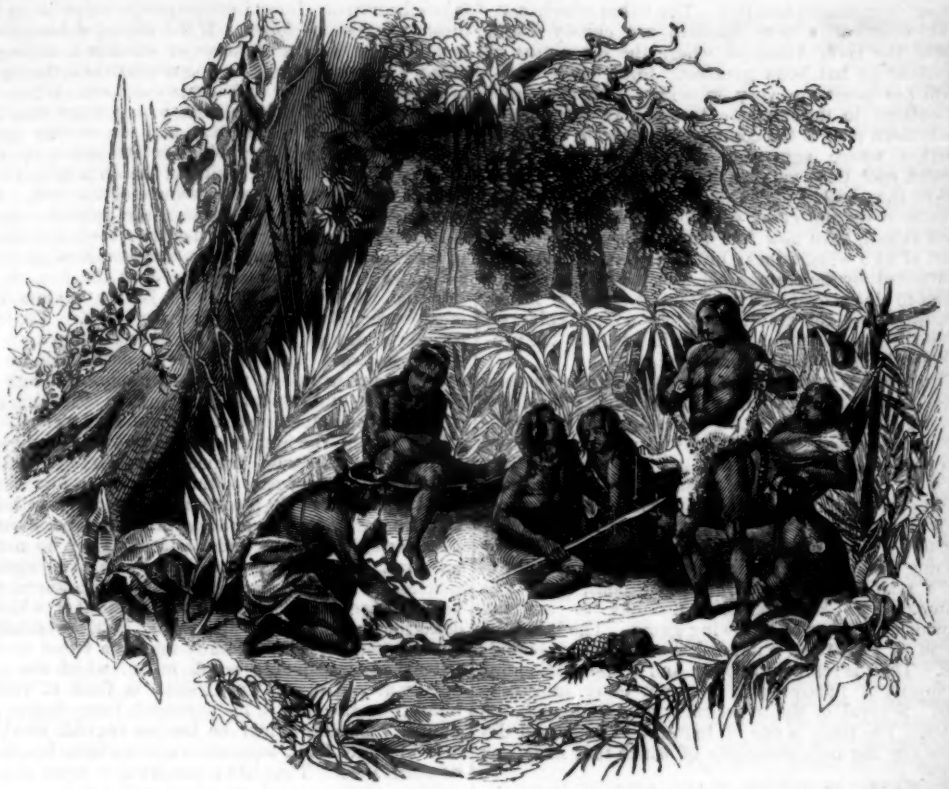


[Brazilian Indians.—From a Drawing by Rugendas.]

ABORIGINES OF BRAZIL.

The discovery of America gave to the physiologist and the philosopher the opportunity of studying the peculiarities of a race of men whose existence was unknown before the age of Columbus. Their complexion is of a reddish-copper hue, not unlike cinnamon; the forehead low, and the outer angles of the eyes are turned upwards; the eyebrows are high; the cheek-bones prominent; and the black, long, coarse, and shining hair does not grow thickly on the head. The circumstances which connect this race with the rest of the human family are involved in an obscurity which renders conjecture even of intense interest. The recent peopling of the New World is now generally abandoned as inconsistent with the philosophy of known facts. From whence then did this population spring, possessing as it does certain characteristics which belong to it alone? In the absence of historical records and of tradition, conjecture has wandered without restraint. By one writer it is supposed that America was peopled from the dispersion of the Israelites; by another, that the Egyptians were the ancestors of the Mexicans; while a Carthaginian origin has been given to them by others. Again, the purely Asiatic origin of the aborigines of America has been strongly supported. The monuments and remains of an ancient period, which are to be found in various parts of North and South America—as the mounds of earth and fortifications in the valley of the Ohio, now overgrown with the tallest and oldest forest trees; the pyramids of Mexico, and works comparable only to those of ancient Egypt; the remains and the bas-reliefs near Guatemala; the works of the ancient Peruvians—were, even on the discovery of America, regarded by the aboriginal inhabitants as the remains of a much more ancient people. They are proofs that this anterior race possessed a higher degree of civilization than now exists, and a melancholy interest is attached to their decline. Of the causes of their decadence not a single tradition has been found. We see only the effects of some catastrophe by which the bonds of the social state have been snapped, and the population scattered into the smallest aggregate bodies, consisting in some cases of a family, that is, of relations by blood and marriage, and divided from others by feelings of hostility and by difference of language. At the same time, their uniformity of manners, customs, and modes of living, prove that at one time they have formed part of a larger body politic. The multiplicity of languages among the aborigines of America is a most remarkable feature of their present state. Dr. Von Martius, in his 'Travels in Brazil,' states that "out of twenty Indians employed as rowers in the boat in which we navigated the streams of the interior, there were often not more than three or four who understood any common language. No common voice or common interest cheered them as they sat beside each other during a journey of several hundred miles, which their various fortunes had called them to perform together."

Brazil is about sixty times larger than England, and it would require many years of patient investigation to discover the affinities and relative position of the tribes to be found in this vast territory. Dr. Von Martius has furnished more than two hundred and fifty names of nations, hordes, or tribes at present found in the country; but some of them belong only to small

clans, or even single families. The tribes which consist at most of a few families are chiefly found south of the river Amazons, where the disruption of the population has been greatest. Such tribes, clans, or families possess a very imperfect language, and live isolated in their native forests. In the central and southern part of the country there are five powerful tribes, whose aggregate number exceeds sixty thousand, each tribe varying in number from eight to eighteen thousand. The Tupis, who were found settled everywhere on the coast when the Portuguese first visited Brazil, have now lost their independence, and consist of two weak tribes; but their former power is still attested by the number of words of Tupi origin applied to places over a large extent of country. Humboldt estimated the number of the copper-coloured race in the two Americas at six millions, but the proportion existing in Brazil is not known.

With the exception of the Muras, who are without houses, and whose wandering habits have gained for them the appellation of the gypsies of Brazil, all the tribes practise some sort of agriculture, and most of them rear poultry. Each tribe has its own plantation, which is cultivated by the women for the common benefit; and certain ideas of common possession prevail with regard to their huts and utensils, which belong to the tribe rather than to individuals; scarcely anything being appropriated as personal property except a man's accoutrements, his weapons, pipe, and hammock. It is considered unlucky to use the weapons of another in following game. The hunting-ground of each tribe is defined by well known boundaries. Theft is scarcely known, and accumulation for the supply of future wants does not enter into their ideas. Several of the tribes carry on a trade with the whites. The trade is one of barter, and loans and deposits are the only securities of which they have any notion.

A good idea of the daily mode of life amongst the Brazilian tribes is furnished by Dr. Von Martius, in the following extract from his 'Travels:'—"As soon as the first rays of the sun beam on the hut of the Indian, he awakes, rises immediately, and goes to the door, where he generally spends some time in rubbing and stretching his limbs, and then goes into the woods for a few minutes. Returning into the hut, he looks for the still live embers of the fire of the day before, or lights it afresh by means of two dry sticks, one of which he sets upon the other, twirling it like a mill till it kindles, and then he adds dry grass or straw. All the male inhabitants then take part in the business; some drag wood out of the forest; others heap up the fire between several large stones, and all of them seat themselves round it in a squatting attitude. Without looking at or speaking to each other, they often remain for hours together in this position, solely engaged in keeping in the fire, or roasting Spanish potatoes, bananas, ears of maize, &c. in the ashes for breakfast. A tame monkey, or some other of their numerous domestic animals with which they play, serves to amuse them. The first employment of the women on leaving their hammocks is to paint themselves and their children, on which each goes to her particular domestic occupation, stripping the threads from the palm-trees, manufacturing nets, making earthenware, rubbing mandioca, and pounding maize, from which they make a cooling beverage. Others go to their little plantation to fetch maize, mandioca, and beans; or into the forest to look for wild fruits and roots. When the men have finished their frugal breakfast, they prepare their bows, arrows, strings, &c. It is not till the sun is high and the heat considerable that the Indian delights to bathe himself, and then goes between nine and ten to the chace, generally accompanied by his wife. On these occasions he takes the narrow almost imperceptible footpaths, or goes directly across the forest. If the object of his journey is distant, he breaks branches of the shrubs as he goes along, which he leaves hanging or scatters in the path in order the more easily to find his way back. When they have taken some small animals, or one large one, their hunting is over for that day, and the woman carries home the game in a bag, which is fastened to her forehead by a band. The cooking of the dinner, as well as keeping in the fire, is the business of the men. Pigs are singed; other hairy animals are spitted with the skin and hair on, and put to the fire; birds are slightly plucked and then drawn. The body is spitted on sticks, either whole or in pieces, roasted at the fire, or put into the pot with water. The Indian prefers roast meat, especially when very fresh, to boiled. The tapir, monkeys, pigs, armadilloes, pacas, and agoutis are his favourite dishes, but he readily eats deer, birds, turtles, and fish, and in case of need contents himself with serpents, toads, and larvæ of large insects roasted. They generally dine after the chace, about four o'clock. The inhabitants of the hut, or any neighbour or individual of the same tribe who happens to be present, partakes of the meal. Every one, without regard to precedency, pulls off a piece of the meat, and squats down with it, at a distance from the fire and apart from the rest, either in a corner of the hut or under a tree. They do not eat salt, but use as seasoning a berry of the capsicum species. The wife places a vessel of mandioca flour near the fire, and each takes a handful of it, which he dexterously throws into his mouth. When the meal is over, a member of the family fetches a vessel of water from the neighbouring brook, out of which every one drinks at pleasure. The Indian is fond of rocking himself or sleeping in his hammock immediately after dinner Besides dinner he has no regular meal, but eats at times fruit, bananas, water-melons, &c., which he cultivates." Thus life passes away without any conception of the moral grandeur and dignity to which human nature under happier auspices is led to aspire. Drinking feasts, with dancing and singing, diversify the routine of savage life in Brazil. At these meetings the quarrels of one tribe with another are discussed, hostilities are determined upon, and common hunting parties fixed.

The huts of the Coroados tribe are also described by Dr. Von Martius:—"They were supported by four corner-posts, twelve or fifteen feet high, and were from thirty to forty feet long. The walls, made of thin laths connected by wicker-work, and sometimes plastered with clay, had on both sides openings the height of a man, with moveable doors of palm-leaves; the roof was made of palm-leaves and maize straw; the hut was closed on the windward side, or, where the sides were entirely open, the roof extended much farther and lower down. In every hut there were in different parts of the floor hearths for the several families residing in it. Some families had huts resembling tents, made entirely of palm-leaves. There was no other issue left for the smoke but through the roof and the doors. Hammocks, made of cotton cords, which at once supplied the place of tables, beds, and chairs, were suspended to the posts round the huts about a foot from the ground. They are the chief article of furniture. Some earthern pots, baskets made of palm-leaves, filled with Spanish potatoes, maize, mandioca roots, and other fruits of the forest, drinking vessels, a hollow trunk of a tree for pounding maize, constituted the whole of their household furniture. The arms of the men, bows and arrows, lean against the walls."

Sixty or seventy years ago it was the fashion to admire the sort of life which the Indian leads in his native forest; and if a listless state of existence under a fine climate were the *summum bonum* of life, the condition

of the uncivilized aborigines of Brazil might be envied; but in such a state the human mind becomes incapable of attaining the enjoyment for which it is destined. The noblest faculties are directed to no higher object than the pursuit of wild animals or the stratagems of war; and even the pleasures of the senses are blunted. The works of the creation which surround them in the splendid solitudes of the New World awaken no admiration, and their minds are too infantile to be capable of looking beyond the range of their daily wants. In connection with this obtuseness and apathy, which admits neither of mental pleasures nor any but the coldest attachments of domestic life, we find the practice of cannibalism existing among some tribes, and this in one of the most luxuriant regions of the world; infanticide is still more common; and many tribes put the aged and infirm to death. Dr. Von Martius states that the Guaicuru women never rear any children before their thirtieth year; the Guanás often bury their female children alive, and even the mothers expose their new-born infants; and parental affection is a thing unknown on the father's side. The law of retaliation involves the whole population in a constant state of animosity and warfare. The aborigines of Brazil are without any systematic form of superstition, and the Pajés, who are priests, doctors, and conjurors, and form a distinct class, exercise a capricious and tyrannical power over them, from which there is no escape; and not unfrequently they cause the lives of individuals to be sacrificed to their malévolence or to sustain their imposture.

IMPORTANCE OF CHEMICAL SCIENCE IN MANUFACTURES.

[From Dr. Gregory's 'Letter to the Earl of Aberdeen on the State of the Schools of Chemistry in the United Kingdom.']

The first great stimulus to the improvement of the manufacture of sulphuric acid was given by the announcement of a prize of 1,000,000 francs (40,000*l*.), offered by the Emperor Napoleon for the discovery of a simple and cheap process for extracting soda from sea salt. Soda, as is well known, has been used, from time immemorial, for the manufacture of soap and glass, two products of the highest value to mankind. Indeed the use of soap is so essential to comfort, that the quantity of soap consumed by any people may be viewed as a direct measure of the degree of civilization and happiness they enjoy. Its use depends on the feelings of comfort, nay, on the sense of the beautiful, which are inseparable from cleanliness. Where these feelings prevail, there, we may be sure, civilization and happiness are to be found. The princes, counts, and barons, the rich and powerful in the middle ages, who concealed with costly spices and odours the offensive exhalations of their skin and of their clothes, which rarely came into contact with soap, indulged, it is true, in greater luxury in their sumptuous feasts and splendid dresses than their descendants in modern times. But how vast is the difference between their days and ours, in which personal filth has come to be synonymous with absolute misery!

It is to glass, again, that the poor man owes the inestimable blessing of the free admission of light to his dwelling, even in the coldest climate. It is not easy to exaggerate the value of these two products, soap and glass, to mankind. During the war, France was deprived of her accustomed supply of barilla (the usual source of soda) and of soap from Spain, the ports of both countries being watched by the British fleet. The high price of soda, soap, and glass, consequent on this state of matters, led to the offer of the prize above mentioned; and the problem was solved by the French chemist Leblanc, who furnished a cheap and simple process for extracting soda from sea salt. France soon supplied herself at a cheaper rate than before; manufactories of soda, soap, and glass arose and flourished; and the bitter feelings excited among the Spaniards by the permanent loss of a lucrative trade were not without their influence in bringing the Peninsular war to a fortunate conclusion, and in hurling Napoleon from the imperial throne.

Such were the immediate results of Leblanc's discovery; but it is painful to add, that he never received the reward he had so well deserved. The Restoration occurred in the interval; the new government had more pressing debts to discharge; and it is understood that the claim has now been shut out by prescription. Let us now consider the nature of Leblanc's process.

To convert salt into soda, the first step, according to this process, which is now, with some modifications, uniformly followed, is to convert the salt into sulphate of soda. This can only be done by means of sulphuric acid, of which 80 lbs. are required for 100 lbs. of salt. Hence, one of the first effects of Leblanc's discovery was to create a very large demand for sulphuric acid. It is obvious that as soon as the government, by reducing the duty on salt, reduced its price to a minimum, the price of soda became dependent on that of sulphuric acid. This circumstance, together with the extensive demand, and the large profits realized by the makers of sulphuric acid, turned the attention of men of science to the improvement of this latter manufacture; and every year produced some new amelioration, while the price of the acid steadily fell, and the demand for it as steadily increased. Its formation was studied by the most accomplished chemists, and brought by degrees to its present nearly perfect state.

Sulphuric acid is made in vessels, or rather chambers, of lead, and so large is the scale of operations in some manufactories, that one of these chambers would contain with ease a middle-sized house of two stories. So nearly does practice in these great manufactories approach to theory, that 100 lbs. of sulphur, which by theory should yield 306 lbs. of sulphuric acid, do actually yield 300 lbs.

In this manufacture, the price of the product depends partly on the apparatus, partly on the price of the materials, sulphur and saltpetre; and in both a great reduction has been effected. Till lately, the plates of lead, of which the chambers are formed, were soldered together with difficulty, by means of lead, no other solder being able to withstand the action of the acid. The operation of soldering cost nearly as much as the plates themselves; but now that the oxy-hydrogen blowpipe is used for the purpose, the expense is a mere trifle, while the operation is so easy, that a child may perform it. Again, the acid was formerly concentrated in enormous glass retorts; these were exposed to breakage, occasioning heavy loss, and destroying the furnaces; vessels of platinum are now used for concentrating the acid, and although these sometimes cost from 1000*l*. to 1500*l*. a-piece, they are found, from their durability, to be a source of economy, and have materially contributed to bring about the very low price of the acid: moreover, it is the demand for platinum for such vessels that alone renders profitable the working of the Russian mines of that metal. We may see by this, how every discovery acts in many different ways, and always advantageously.

When economy had been pushed thus far in the apparatus, the price of the materials became a point of more importance than previously; that of nitre was so high as to stimulate the manufacturer to search for some substitute, which was speedily found in the nitrate of soda, enormous beds of which cover whole plains in South America. This salt is much cheaper than saltpetre, and preferable to it for the manufacture both of nitric acid and of sulphuric acid; but besides the direct

effect of cheapening these acids, the introduction of nitrate of soda, by limiting the use of saltpetre to the making of gunpowder, for which nitrate of soda does not answer, has produced the indirect effect of cheapening gunpowder, the price of saltpetre necessarily falling as the demand for it diminished. This must be, in time, a material source of saving to governments.

Finally, with regard to the chief material, sulphur, on which the price of sulphuric acid now principally depends, it is well known that our manufacturers derive nearly their whole supply from Sicily, so that Naples may be said to possess a monopoly of that article. That the trade in sulphur is highly important to both nations is obvious, when we reflect on the enormous quantities of sulphuric acid now manufactured in Britain alone. A small manufactory will produce from 250 to 300 tons annually; a large one, 3000 tons or more: it is no wonder then that the late interruption to the trade in sulphur caused great uneasiness among our manufacturers; but it had another effect—the attention of chemists was keenly directed to other means of procuring sulphur, and, during the period of obstruction to the sulphur trade, it is said that no less than fifteen patents were taken out in England for recovering the sulphur from the sulphuric acid used in the soda manufacture. The restoration of the trade to its accustomed channel has postponed the accomplishment of this object; but the impulse has been given, and Naples may ere long find good cause to regret that she ever allowed any obstruction to the trade in sulphur. We have whole mountains of gypsum and heavy spar, and abundance of pyrites and galena, all of them minerals containing sulphur, which we shall one day find the means of extracting economically; indeed, during the period above alluded to, many tons of sulphuric acid were actually made from iron pyrites. When we consider the resources of modern chemistry, it will not appear improbable that, if the sulphur trade had been obstructed for a year longer, it might by this time have been lost to Naples for ever.

These considerations are of themselves sufficient to show that the manufacture of sulphuric acid has become a matter of national importance, were it only on account of its use in making soda; that alkali is now sold in a state of perfect purity, and at a wonderful low price, so low indeed as almost to have put an end to the use of potash. The quality of glass and soap has been very much improved, and their price greatly diminished; the consumption of both articles has naturally increased in a corresponding ratio. Wood ashes, no longer in demand to nearly the same extent as formerly for manufactures, must also fall in price, and will soon be employed as one of the most powerful manures for our wheat-fields.

Such are a few of the bearings of the manufacture of sulphuric acid, called into existence, or at least vitally improved, by the demand for cheap soda: but this is not all; and although it is impossible here to follow out all the ramifications of this remarkable branch of industry, I cannot refrain from pointing out one or two of its immediate results, which have not yet been adverted to.

It has already been mentioned that sea-salt, in order to yield soda, must first be converted into sulphate of soda; now, in acting on the salt for this purpose with sulphuric acid, an enormous quantity of muriatic acid is produced, which, in the earlier periods of the manufacture of soda from salt, was thrown away as worthless, so great were the profits realized on the soda; but muriatic acid contains chlorine, and no other compound of chlorine yields that body more easily or more cheaply than muriatic acid. The bleaching properties of chlorine were known, but had not yet been applied on the great scale. At first the chlorine was disengaged directly from the muriatic acid, and brought in contact with the cloth to be bleached, in the form of gas; but it was soon found that, by combining the chlorine with lime, it might be obtained in a solid form (bleaching-powder), capable of transportation to any distance; hence arose a new and lucrative manufacture, of such importance, that it may safely be asserted that but for the discovery of the bleaching-powder the cotton manufactures of Britain would never have attained their present development: nay more, had the British manufacturers been tied down to the old method of bleaching, they could not long have competed in the price of cottons with France or Germany.

To bleach in the old style, the first requisite is land, and that good and well exposed meadow-land. The cloth must be exposed for several weeks, and that only during summer, to sun and air, and must besides be constantly watered by hand. Now a single manufactory of moderate size near Glasgow bleaches, on the new system, on an average, 1400 pieces of cloth daily throughout the year. Let us only consider what an amount of capital would be required merely to rent the land necessary for bleaching in the old manner this enormous quantity of cloth, in the vicinity of a large city. Let us reflect on the time and labour that would be indispensable, and we shall soon perceive that, with such burdens, the British manufacturer could not compete with his rivals on the Continent, where vast tracts of fine meadow-land might be had, distant from any great city, at a far cheaper rate, and in a more sunny climate. The superiority of our machinery would thus be in a great measure neutralised, were it not for the manufacture of bleaching-powder, which in its turn depends on those of sulphuric acid and of soda. I need not do more than allude to the use of the bleaching-powder in paper-making, which is one great cause of the superior quality and low price of paper in Britain.

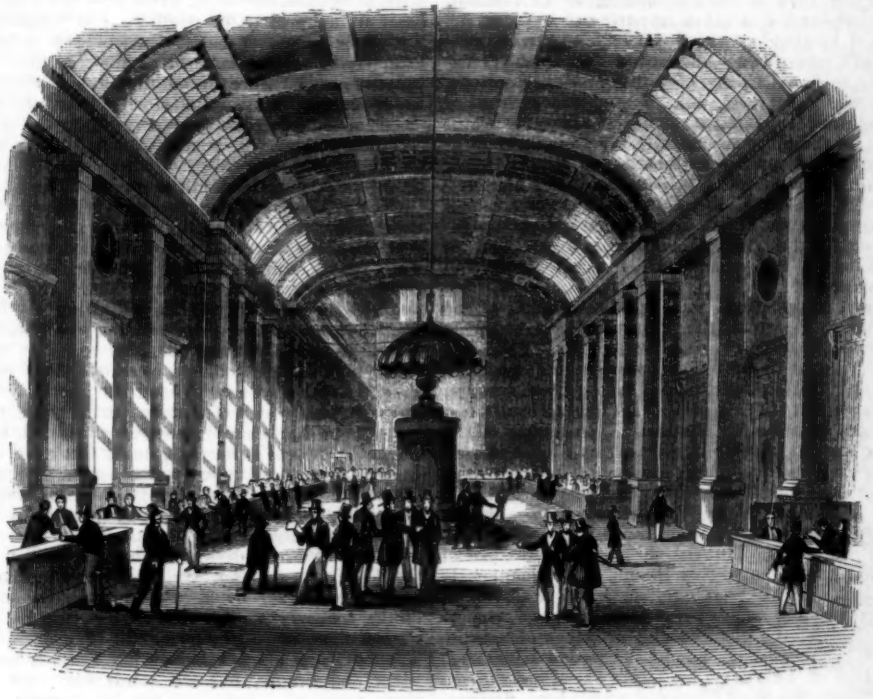
Another important use to which the muriatic acid produced in the soda manufacture, and formerly thrown away, is now applied, is that of preparing cheap and superior glue from bones. Bones consist of bone-earth and glue; the former is readily dissolved by diluted muriatic acid, while the latter is left, and has only to be dissolved in warm water to be ready for use. The acid solution of the bone-earth, on the other hand, promises to be an admirable form of using that earth as manure. Professor Liebig, in his late valuable work on Agricultural Chemistry, has recommended this application. At present the solution in question is thrown away as useless in the glue manufactories.

The last application of sulphuric acid which I shall here mention is a very recent one, and owes its origin to one of the most scientific chemists of the day, M. Gay-Lussac. It consists in its employment in the refining or purification of silver.

Silver, as it comes from the mines, is alloyed with one-half, or rather more, of copper. It also contains a small quantity of gold. It must be refined—that is, purified; and the pure or fine silver is then alloyed with the due amount of copper to form the standard silver.

Raw silver was formerly refined by cupellation, a process which cost about 35*s.* for 50 lbs. of silver. The gold contained in the silver would not repay the expense of extracting it, and was therefore allowed to remain, and to circulate in the silver, absolutely worthless. But by means of sulphuric acid, cupellation is avoided; the silver is refined at a most trifling cost, and the gold is obtained by the same operation: nay, even the copper, which was formerly lost, is now preserved; and although the gold only amounts to from

$\frac{1}{1000}$th to $\frac{1}{1200}$th of the weight of the silver, yet as its value is about 1½ per cent. of that of the silver, it not only repays the whole expense of refining, but leaves a clear profit to the refiners. This beautiful application of chemistry has given rise to the singular and apparently anomalous result, that the seller of raw silver receives from the mint the exact quantity of pure silver which his alloy, on being tested, is found to contain, and likewise the whole amount of the copper present in the alloy, thus apparently paying nothing for the process of refining. The refiner is paid by the gold, which he retains, and which was formerly lost to every one. The saving effected by this improvement to the French mint is stated to have been enormous.



[The Long Room.]

THE CUSTOM-HOUSE.

All the Western nations appear to have inherited from the Romans the practice of exacting certain payments on the landing and embarkation of merchandise at each seaport, and the name of customs, or of some equivalent term, shows that these payments were sanctioned by immemorial usage. These exactions aided the sovereign in his necessities, and induced him to encourage the commerce of his subjects. Rather more than a century afterwards Ethelred II. (A.D. 978-1016), in a council held at Wantage in Berkshire, fixed the toll or custom on ships and merchandise arriving at Billingsgate, which at that time appears to have been the principal landing-place in the port of London. It was declared that every smaller boat should pay one halfpenny; a large boat with sails, one penny; a keel (a ship, we suppose), four pennies; a vessel with wood, to give one piece of wood; a boat with fish coming to the bridge, one halfpenny or one penny, according to its size. After the Conquest customs were exacted not only by the king, but, at the outports, by the lord under whose protection the town was.

In 1559, in the first year of the reign of Elizabeth, steps were taken which may be said to have been the commencement of the present system of collecting the customs in London. It was ordered that "all creeks, wharfs, keys, lading and discharging places in Gravesend, Woolwich, Barking, Greenwich, Deptford, Blackwall, Limehouse, Ratcliffe, Wapping, St. Katherine's, Tower Hill, Rotherhithe, Southwark, London Bridge, and every of them . . . . shall be from henceforth no more used as lading or discharging places for merchandises, but be utterly debarred and abolished from the same for ever." For "the better answering of the revenues of the queen," twenty quays and wharfs were appointed within the port of London, where alone merchandise and produce could be shipped or landed. Some were for all manner of merchandise; others for wine and oils; one for corn only; and Billingsgate was for fish, corn, salt, victuals, and fruit, but groceries were excepted. The owners of these twenty quays were required to give security that no goods should be laid on or shipped from their wharfs until the queen's duties were paid, and that all ships were laden and unladen in the presence of the proper officers. The first three quays on the list are Old Wool Quay, New Wool Quay, and Galley Quay. Wool Wharf, or Customers' Quay, is applied by Stow to one landing-place, which, he says, "is now of late most beautifully enlarged and built." The quays appointed as above are still known as the legal wharfs. They are all between the Tower and London Bridge. As the commerce of London increased, others were appointed, called 'Sufferance Wharfs,' of which five were east of the Tower and eighteen on the Surrey side of the river.

The London Custom-house establishment of 1559 consisted of eight principal officers, each of whom had from two to six others under him, but the principal 'Waiter' had sixteen subordinates. Until 1590 the duties were farmed for 20,000*l.* a year, but on the Queen's government taking the collection of the duties

in its own hand, they yielded about 30,000*l.* a year. The control of the government necessarily led to many improvements in the Customs establishment. The formation of the East India and other great trading companies during the latter half of the sixteenth century, and the growth of colonial commerce, augmented the trade of London and rendered the Customs a much more profitable source of revenue than they had yet been. From 1671 to 1688, according to D'Avenant, the first inspector-general of imports and exports, the customs of England averaged 555,752*l.* a year.

The old Custom-house, destroyed during the Great Fire, was replaced by one of rather more pretensions, which is said to have cost 10,000*l.*, and was at least of more dignified appearance than the adjoining warehouses. In the fifty years after its erection the trade of the country had greatly increased, and from 1700 to 1714 the customs for England averaged 1,352,764*l.* each year. In 1718 the Custom-house was burnt down, doubtless not before it had been found very inconvenient for the transaction of the increased mass of business which had arisen out of a more wide and active commerce.

A new Custom-house soon arose on the site of the old building, in which the inconveniences formerly experienced were for a time remedied. The apartments for the different officers were better arranged, and accommodation was provided for a greater number of clerks, so that the delays of which the merchants had before complained were obviated. The length of the building was one hundred and eighty-nine feet, and the centre was twenty-nine feet deep. The edifice was constructed of brick and stone, and the wings had a passage colonnade of the Tuscan order towards the river, the upper story being relieved with Ionic pilasters and pediments. But the most striking feature of the building was the 'Long Room,' extending nearly the whole length of the centre, being one hundred and twenty-seven feet long, twenty-nine wide, and twenty-four high. At the close of the century the revenue collected in the port of London exceeded 6,000,000*l.* On the 12th of February, 1814, this was also destroyed by fire, being the third Custom-house whose destruction was caused by this element. The flames spread to the houses on the northern side of Thames Street, and in a short time ten were destroyed. Besides the loss of valuable property in the cellars and warehouses, the destruction of documents and papers was also to be regretted. The inconvenience to the shipping and mercantile interests was of course very great. Ships which were ready for sailing were delayed for want of the necessary papers, and the delivery of goods for home consumption and exportation, and the discharge of cargoes, were suspended. The fire occurred on Saturday, and by Monday morning temporary arrangements were made for conducting the public business in the Commercial Sale Rooms, Mincing Lane.

Several years before the occurrence of this fire the enlargement of the old Custom-house had been contemplated, and it was at first proposed to build an additional wing, but, on a survey of the edifice, it was found too much decayed and dilapidated to warrant a large expenditure in its renovation and extension. The Lords of the Treasury therefore directed designs and estimates to be prepared for an entirely new structure; and those by Mr. Laing were finally selected. Between the old Custom-house and Billingsgate there were eight quays, measuring four hundred and seventy-nine feet in length; but the site now fixed upon was immediately east of Billingsgate Dock, with only the intervention of the landing-stairs. The estimates of the new building were by public tender, and one for 165,000*l.*, exclusive of the formation of the foundation-ground and some other contingencies, was accepted. The owners of private property whose interests were invaded by the adoption of a fresh site demanded in the aggregate a sum of 84,478*l.*, and by amicable arrangements and the finding of juries they were paid 41,700*l.* The old materials were sold for 12,400*l.*

It became, of course, an object of the first consideration to ascertain the nature of the substratum on which so large a pile was to be raised. Mr. Laing describes the character of the ground:—"Rising from the level of the river to the south side of Thames Street, the whole of the extent was discovered to have been formerly a part of the bed of the Thames. Quantities of rushes were found mixed with chrysalids of water-insects; mussel-shells were found in different stages of decomposition; those lying at the south-east corner of the quay presented a greenish hue, inclining to the colour of verdigris, while those which were brought up from the depth of seventeen feet below the surface of Thames Street were nearly reduced to earth. It deserves remark," observes Mr. Laing, "that on this occasion three distinct lines of wooden embankments were found at the several distances of fifty-eight, eighty-six, and one hundred and three feet within the range of the existing wharfs; and about fifty feet from the campshot, or under-edge of the wharf wall, a wall was discovered running east and west; it was built with chalk and rubble, and faced with Purbeck stone. This wall was supposed to be either part of the ancient defences of the city of London, or of some outwork, bastion, or barbican extending westward from the Tower." It was so strongly built, that even with iron wedges it was not broken without great difficulty; but it was necessary to effect this in order to form a sound foundation. The river, then, in ancient times had been repeatedly contracted in this place.

The preliminary difficulties having been overcome, the first stone of the new building was laid at the south-west corner by Lord Liverpool, then first lord of the treasury, on the 25th of October, 1813, and it was opened for business on the 12th of May, 1817. The northern elevation, fronting Thames Street, was plain and simple, but the south front, towards the river, assumed a more ornamental character, the central compartment projecting forward, and the wings having a hexastyle detached colonnade of the Ionic order. The attic of the central part of the building, comprising the exterior of the Long Room, was decorated with alto and basso relievos, in panels five feet three inches in height, representing in a series of allegorical figures the arts and sciences, commerce and industry, and characteristic figures of the principal nations with which Great Britain holds commercial intercourse. The dial-plate, nine feet in diameter, was supported by colossal figures of industry and plenty, and the royal arms were sustained by figures of ocean and commerce. The long room was one hundred and ninety-six feet by sixty-six. Unfortunately the foundation of the edifice gave way, notwithstanding the pains which had been taken to render it secure. In the Report of a parliamentary committee, in 1828, on the duties connected with the office of Works and Public Buildings, the failure of the building is somewhat harshly noticed. It is said that "the fraudulent and scandalous manner in which the foundation of the New Custom-house was laid, occasioned, by its total failure in 1825, a charge of no less than 170,000*l.* to 180,000*l.*, in addition to the original expenditure of 255,000*l.*" The total cost of the edifice has therefore amounted altogether to nearly half a million sterling. The Long Room and the central part of the building were taken down and the foundations relaid, but the other parts remain as built by Mr. Laing. The figures just described, which decorated the principal front, were removed; but though there is greater plainness, the

simplicity is pleasing, if not majestic. As the breadth of the quay is not equal to the height of the building, it is not seen to advantage from that point, but the bridge or the middle of the river affords a better view. The river front is four hundred and eighty-eight feet in length, or ninety feet longer than the Post-office, and exceeding by thirty feet the National Gallery.

At the present time nearly one-half of the customs of the United Kingdom are collected in the port of London; and five or six years ago the proportion exceeded one-half. Not only is the immense business of its own port conducted at the London Custom-house, but the board of commissioners which sits there has all the out-ports in the United Kingdom under its superintendence. From them it receives reports, and instructions from this central board are issued to them in return. The Custom-house is one of the oldest sources of statistical information; and under the inspector-general of imports and exports, clerks are continually engaged in recording the facts and figures which illustrate the commercial movement of the country, the result of their labours being frequently printed and made public by order of Parliament.

Besides the warehouses and cellars, there are about one hundred and seventy distinct apartments in the Custom-house, in which the officers of each department transact their business. The object to be accomplished by the architect, and which, as he tells us, he kept constantly in view, was a judicious classification and combination of offices and departments so as to ensure contiguity and convenience, and at the same time to present such accommodation as was demanded by the peculiar purposes for which each was required. All the rooms are perfectly plain, with the exception of the Board-room, which is slightly decorated, and contains paintings of George III. and George IV., the latter by Sir Thomas Lawrence. The Long Room is of course the principal object of interest, being probably the largest apartment in Europe of the kind. The length is one hundred and ninety feet, width sixty-six feet, and height between forty and fifty feet. It is not a gallery where the eye embraces at once the whole width and length, but here, as the architect has pointed out, the eye cannot take in both the length and width at the same time, and consequently is at fault as to the comparative dimensions. The present room is not so handsome as the one taken down after the failure of the foundation. The walls and ceiling are tinted to resemble stone, and the floor is of wood. The room is warmed by three very handsome stoves on Dr. Arnot's principle. The cellars in the basement form a groined crypt or undercroft, built in the most substantial manner, and fire-proof; the walls are of extraordinary thickness; and a temperature is constantly maintained which is most suitable for wines and spirits, those which are seized by the officers of the Custom-house being kept here. The king's warehouse is on the ground-floor, and of great extent, and with its diagonal-ribbed arches presents a fine appearance in the interior. The public entrance to the Custom-house is on the northern front, and leads to a double flight of steps. On the southern side there is an entrance for the officers and clerks from the quay and river.

The number of officers and clerks for whom accommodation is provided in the Custom-house is about three hundred, and there are as many more whose business is chiefly out of doors, and who are in daily communication with the establishment.

The business of the in-door department of the Custom-house, so far as relates to the importation and exportation of goods, is all transacted in the Long Room. The officers and clerks of the Long Room, about eighty in number, may be said to form three divisions:—The inward department, with its collector, clerks of rates, clerks of ships' entries, computers of duties, receivers of plantation duties, wine duties, &c.; the outward department, with its cocket writers, &c.; and the coast department. An officer of the Trinity-house is accommodated in the Long Room with a desk and counter for the more convenient collection of lighthouse dues. The class of persons to be seen in the Long Room are shipbrokers and shipowners, and their clerks, who report arrivals and obtain clearances; the skippers themselves are frequently seen for the same object; and wholesale merchants, who have goods to import or export, to place in bond or to re-export. The officers of the room occupy a space extending along each of the four sides, within which they have their desks. On the whole, it is a place which every person should visit at least once in their lives.

THE TRAVELS OF NICANDER NUCIUS.

The Camden Society has lately published a curious work entitled 'The Travels of Nicander Nucius of Corcyra,' printed from a Greek MS. supposed to have been written about the middle of the sixteenth century, and preserved in the Bodleian Library, to which is added an English translation and copious notes, under the superintendence of the Rev. J. A. Cramer, of Oxford. The Ambrosian Library at Milan possesses a fuller and more perfect copy of this work, but as Mr. Cramer was unable to obtain a transcript of it, he was obliged to have the translation taken from the Oxford MS. in its mutilated state. Of Nicander Nucius no other information can be gathered than what he himself furnishes in his 'First Book of Travels.' It appears that whilst he was residing at Venice, there arrived an embassy from the emperor Charles V. to the court of the sultan Solyman. Nicander being acquainted with the ambassador, Gerardus Veltuyckus, or Veltwick, a man of great learning and acquirements, proffered him his services during his journey to Constantinople, which were accepted. On the return of the ambassador from Turkey, Nicander accompanied him on various embassies through many of the countries of Europe, which he describes in his 'First Book of Travels.' The Second Book is devoted to an account of his sojourn in England, to which place he went with Gerardus on a mission from the emperor to Henry VIII. After describing a stormy and perilous voyage from Calais to Dover, our author goes on to say: "And although a side-wind fell on us, yet however, towards sunset, we reached the promontory of the island, and came to land in the harbour of Dover. Here is built a small town, full of inns, and a certain fort stands erected for the protection of the harbour. Having therefore disembarked, and tarried one day in the inns, on the morrow, horses having been prepared for us, we mounted and proceeded on our journey to the king, and arrived in Greenwich, a village in the neighbourhood of London, the capital of England. Whereupon, having been presented to the king, who was at this time residing in his palace, Gerardus, the ambassador, laid before him the instructions he had received from the emperor; to which the king having both graciously acceded, and appointed for us suitable lodgings and accommodations, he himself returned to London. And we, continuing still in Greenwich, on the fifth day removed to London. And having apartments somewhere near the royal palace, we awaited the king's final despatch of the affairs laid before him. Being then thus circumstanced, in order that I might not seem to have wasted the opportunity inconsiderately and idly, it appeared good to me to investigate the peculiarities of the island, and to ascertain, as far as lay in my power, the things appertaining to it.

"The island itself, then, is said to be the greatest of

those in the world, except Taprobane and Thule, by those who have formerly examined such matters, and to be triangular in shape. And that side which inclines towards the west and Spain measures seven hundred miles; and that towards the south and the opposite coast of France, which also is called Kent, extends five hundred miles; and that towards the north and Germany is estimated to be eight hundred miles. And on the coast it has several cities of note, and forts, and towns; and amongst the cities indeed which are conspicuous and celebrated, are Antonia and Bristol, Danebium and Dartenicum, and London, which surpasses these; and the palaces which are in it in beauty and magnitude excel the others; and a river flows through it, both great and navigable, having a very rapid current, for six hours flowing downwards, and again rising for six hours. . . . . And a certain very large bridge is built, affording a passage to those in the city to the opposite inhabited bank, supported by stone cemented arches, and having also houses and turrets upon it. And one may see ferry-boats and small barks, which are rowed with speed, plying in great numbers on the banks, for the accommodation of the city. But merchants' ships, which arrive in London from every country, ascend by the river to the city, and import wine and oil, and other articles of subsistence.

"And throughout the city a large number of mansions are built for the residence of the nobles and merchants, and lofty halls ornamented with florid paintings, are erected. Also in some parts of the city very large royal palaces, ornamented in a very high degree, and luxuriously furnished, and encircled by gardens and parks, are pre-eminent. And the whole city is paved with flint stones. And a certain castle, bearing the semblance of a citadel, very beautiful and strong, is built very near the river, having very many and large guns. Here the treasures and valuable property are deposited. For they are said to exceed the antiently famed wealth of Crœsus and Midas, so vast a quantity of gold and silver is treasured up there. And near to Greenwich they possess an arsenal with dock-yards, where they build ships, it being close to the river. And in this city there dwell men from most of the nations of Europe, employed in various mercantile arts, such especially as regard the working of iron and other metals; added to which they execute with surprising skill the weaving of woollen cloths and richly embroidered tapestry.

"Almost all indeed, except the nobles and those in attendance on the royal person, pursue mercantile concerns. And not only does this appertain to men, but it devolves in a very great extent upon women also. And to this they are wonderfully addicted. And one may see in the markets and streets of the city married women and damsels employed in arts, and barterings and affairs of trade undisguisedly. But they employ great simplicity and absence of jealousy in their usages towards females. For not only do those who are of the same family and household kiss them on the mouth with salutations and embraces, but even those too who have never seen them; and to themselves this appears by no means indecent.

"And London, in temples and public edifices, and baths, surpasses all the cities of England. And somewhere about the middle of the city a certain place is set apart, where there is daily an assemblage of merchants, from which there arise very extensive barterings and traffic."

Having given an account of our exports and imports, and the manner of transacting business with bills of exchange, Nicander tells us that "The city is in the highest degree well regulated, under the king and the other authorities, by regal and private laws. Wherefore also they pay to their king the greatest obedience. And they possess a peculiar language, differing in some measure from all others, having received contributions from almost all the rest, both in words and syllables, as I conjecture. For although they speak somewhat barbarously, yet their language has a certain charm and allurement, being sweeter indeed than that of the Germans and Flemish. As regards their manners and mode of living, ornaments, and garments, and vestments, they resemble the French more than others, and for the most part they use their language. And in feasts and drinkings, and in pledgings of health and carousals, they differ in nothing from the French. And their nobles and rulers, and those in authority, are replete with benevolence and good order, and are courteous to strangers. But the rabble and the mob are as it were turbulent and barbarous in their manner, as I have observed from experience and intercourse. And towards the Germans and Flemish and Italians, and the Spanish also, they are friendly disposed; but towards the French they entertain not one kindly sentiment of good will; but from some natural disposition, being very hostilely disposed, they are animated towards them with private and public feelings of enmity. Hence, too, some few only of the French merchants reside in the island, both because their kings, frequently without proclamation, wage on each other no trivial war, and it being doubtful if their residence shall be safe; wherefore indeed the French rarely dwell in London.

"The king seldom takes up his abode in the cities of note, but near smaller towns and other places, where palaces stand for the reception of himself and the grandees of his court; and in these he passes the greatest part of his time. And the whole body of life-guards, and all his retinue, and the whole suite of grandees, and chief of the privy council, he always lodges in the court; changing these daily, as is expedient, and receiving others of like stations, for the administration of affairs pertaining to his government. And in London he appoints those called prefects and administrators, who manage the affairs of the city. No sentence, however, inflicting capital punishment or loss of limbs, do they execute without the king's sanction. And his consort and children he provides for in the royal court. And he has spearmen and targeteers, bearing the badge of royalty, both on the breast in front and on the back, both halberdmen and swordmen. And they use bucklers and Italian swords, so that they are able, resting the former on the ground, to discharge arrows.

"The race of men indeed is fair, inclining to a light colour; in their persons they are tall and erect; the hair of their beard and head is of a golden hue; their eyes blue, for the most part, and their cheeks are ruddy; they are martial and valorous, and generally tall; flesh-eaters, and insatiable of animal food; sottish and unrestrained in their appetites; full of suspicion. But towards their king they are wonderfully well affected; nor would any one of them endure hearing anything disrespectful of the king, through the honour they bear him; so that the most binding oath which is taken by them is that by which 'the king's life' has been pledged."

Nicander gives a somewhat lengthy, though not very correct account of King Henry and his wives; and also of the hostilities between Francis I. and Henry. He descants largely on ecclesiastical affairs, and relates some interesting particulars respecting the suppression of monasteries; but our space will not permit us to make any further extracts from the 'Travels' of our quaint Corcyrean. We can give no explanation of what English cities he means by Antonia, Danebium, and Dartenicum.